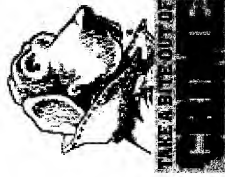


# Distributed Network Defense Systems

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## ***Strategic Overview***

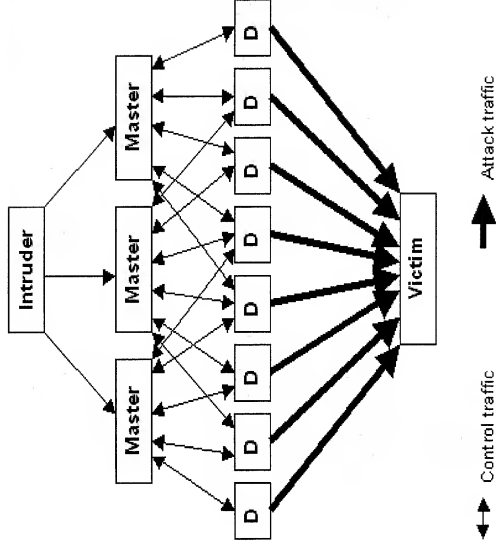
***September 24, 2000***

Net-guards

# What is Distributed Denial of Service Attack (DDoS)? (\*)

- Swamp victim & deny service from customers:
  - Exhaust resources
  - Jam routers, networks & discs....
- Distributed Attacks:
  - Many sources (daemons) bombardment
  - Master machines coordinate the attackers
- Several different versions in use: Trinoo, TFN, TFN2K and stacheldraht

# Distributed Denial of Service (\*)



# What is being <sup>KHBIT F</sup>done today?

## Local on site:

- Firewalls, IDSs, Router access lists, etc.
- HOT SPOTS, congestion point

## Global network wide:

- Ingress/Egress filtering and anti-spoofing
- Anti virus scans
- Turn off directed broadcasts
- Enforcement problem \ Does not protect self

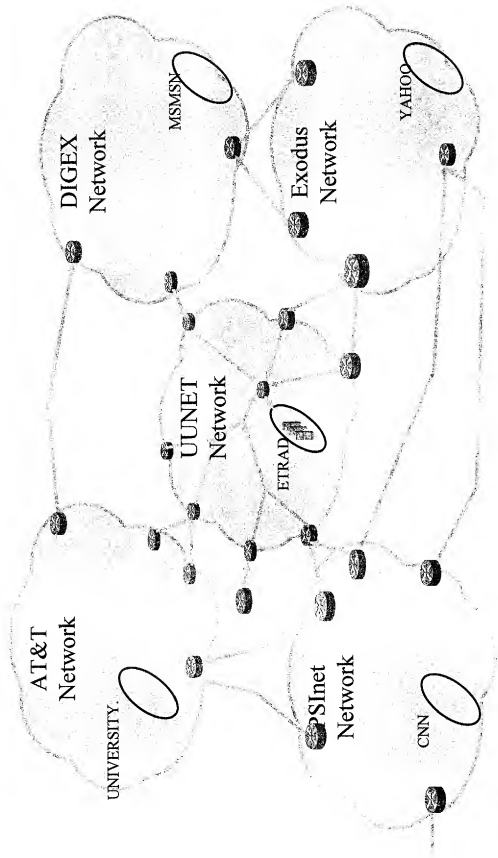
# The Difficulties (\*)

- Performance: Huge Capacity & Proc. Needs
- Defense resource not function of site size
- Solution cannot be in the site level

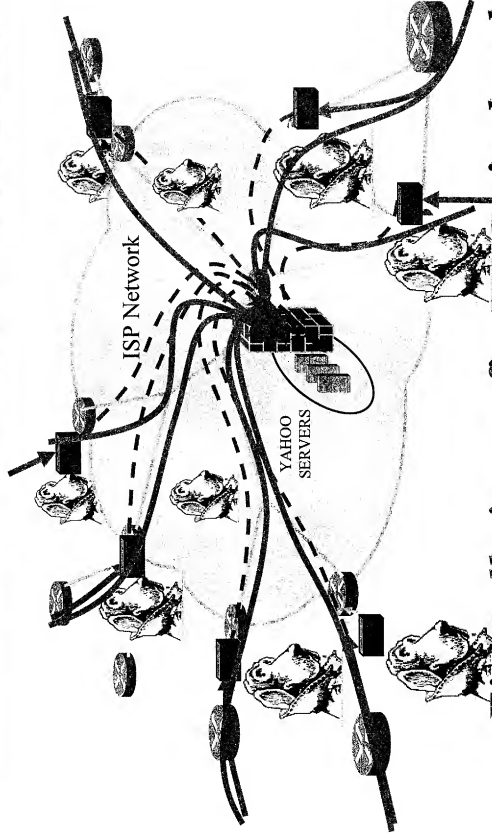
"We have no real defense". Steve Bellovin

ATT Feb '00, David Dittrich WU, Aug '00

# Internet structure



Solution is in the <sup>AS</sup><sub>HOST</sub> level (ATT, exodus, digex, MCI, ...).



*Disirewall id egn fire server is shut down*

# Solution Overview

- Detect & Alert system in each site
- Alert invokes guards sitting around
- Divert victim traffic to guards
- Guards:
  - Anti spoofing module
  - Statistical module
  - Filtering module
  - Ingress filtering management
  - Distributed termination detection module

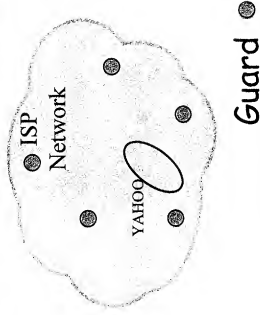


# Core Technologies

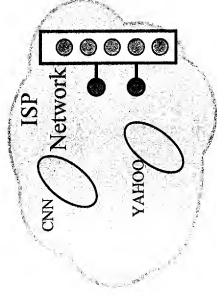
- New concept for distributed defense
- Anti spoofing & Filtering
- Diversion method
- Experience in Protocols & Distributed Algs
- New programmable Network processors  
(Intel IXP1200, Ezchip, Motorola, MMC, etc.)
- Provisional patent application

# Marketing Servers Models

## Dist. Guard company



## Gatekeeper farms



# Guard Architecture

